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MONTANA WATER PLAN

PROPOSED

August 7, 1992

Section: Integrated Water Quality and Quantity Management

Introduction 2
Policy Statement 2
Issues, Options, and Recommendations 2
Subsection A: General Integration Issues 2
Issue 1—Coordinate Permitting 2
Issue 2—Administrative Coordination 4
Subsection B: Surface Water Issues 5
Issue 3—Cumulative Impacts 5
Issue 4—Water Reservations 5
Issue 5—Basin Closure 6
Issue 6—Non-Point Source Pollution 6
Subsection C: Ground Water Issues 7
Issue 7—Controlled Ground Water Areas 7
Issue 8—Long-term Planning 7
Issue 9—Well Construction Enforcement 8
Issue 10—Unplugged Holes 9
Issue 11—Protection form Mining Impacts 9
Issue 12—Information/Education 10
Plan Implementation 11
Legislative Action 11
Administrative Action 11
Financial Requirements and Funding Strategies 12
Bibliography 13
Appendix A: Background 15

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WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

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INTRODUCTION

The use and development of water have been essential to the settlement and growth of Montana. To encourage that growth, several laws and policies were developed to protect the rights of individuals to use water for a variety of purposes. These early laws and policies focused on the use of water and, with few exceptions, did not consider the quality of that water as an essential ingredient to continued use.

In response to public concerns about water pollution, additional laws and policies were enacted to protect the quality of Montana's water. While these laws are premised on the need to protect water quality for existing and future purposes, they may, in some instances, preclude future water use needs.

The legal foundation for these separate bodies of law can be found in Montana's Constitution. Article IX, Section 1 of Montana's Constitution requires the state to "maintain and improve a clean and healthful environment ... [and to] provide adequate remedies for the protection of the environmental life support system from degradation and provide adequate remedies to prevent unreasonable depletion of natural resources." Article IX, Section 3 provides that "[a]ll existing rights to the use of any waters for any useful or beneficial purpose are hereby recognized and confirmed," and "[t]he use of all water that is now or may hereafter be appropriated for ... beneficial use ... shall be held to be a public use." The latter phrase implies that additional water use is in the public interest of the state. Also, Article II, Section 3 describing inalienable rights includes "the right to a clean and healthful environment and the rights of ... acquiring, possessing and protecting property." This implies there must be a balance.

In reality, every use of water (and, in fact, natural processes) affects water quality. Similarly, it will be impossible to maintain water quality without impacting opportunities for additional and alternative water uses. The state's existing legal and institutional framework for water management does not adequately take into account the integral relationship between water use and water quality. Tradeoffs between water use and quality are inevitable, yet our laws seek both to maximize water use and enhance water quality rather than seeking an optimal balance between the two for specific water sources.

Increasing the use of water while wanting to improve its quality poses a difficult challenge to Montana's water management. The purpose of this plan is to build from these two potentially conflicting water policy goals a water management framework that in practice finds the proper balance. For a better understanding of how these goals come into conflict, a more detailed background explanation is found in Appendix A.

POLICY STATEMENT

It is the policy and practice of the State of Montana to integrate the management of water use and the protection of water quality to comply with the rights and policies articulated in the Montana State Constitution. Article II, Section 3 states inalienable rights include "the right to a clean and healthful environment and the rights of ... acquiring, possessing and protecting property." Article IX, Section I requires the state to "maintain and improve a clean and healthful environment ... [and to] provide adequate remedies for the protection of the environmental life support system from degradation and provide adequate remedies to prevent unreasonable depletion of natural resources." Article IX, Section 3 provides that "all existing rights to the use of any waters for any useful or beneficial purpose are hereby recognized and confirmed," and "the use of all water that is now or may hereafter be appropriated for ... beneficial use ... shall be held to be a public use." Implementation of this policy shall be accomplished by managing surface and groundwater quantity and quality as an integrated resource. Implementation shall promote the protection and sustainability of the resource for existing and future uses consistent with the existing legal and regulatory framework.

ISSUES, OPTIONS, AND RECOMMENDATIONS

Subsection A: General Integration Issues

Issue 1—Coordinate Permitting

a. Water Quality in the Allocation Process

While Montana water law allows for the consideration of water quality in new permits or change in use applications for quantities of water greater than 4,000 acre-feet and 5.5 cubic feet per second, it is unclear whether DNRC has the statutory authority to condition or deny permits or changes on the basis of water quality concerns that fall below these amounts. According to the Water Use Act (Section 85-2-311 (1) (b), MCA), when granting a water right permit an applicant must prove by substantial and credible evidence that "the water rights of a prior appropriator will not be adversely affected." DNRC evaluates effects on the water rights of a prior appropriator based on quantity. Therefore, water use permits are not conditioned or denied on the basis of known or potential water quality consequences. Further, when permits are granted, it is not known whether the added withdrawal will affect the water quality of surrounding users or whether that particular user will have water of sufficient quality for his or her intended beneficial use.

Options Recommended

1. Clarify that DNRC has the authority to condition or deny new water use permits and change of use applications based on a preponderance of the evidence and a consideration of whether and to what extent:
   a) The water quality of another appropriator would be adversely affected; or
   b) Water quality in the source of supply, as defined by the primary drinking water standards of DHES, would be adversely affected; or
   c) The ability of discharge permit holder(s) to satisfy effluent limitations would be adversely affected.

   Applications for changes in appropriation rights would only be subject to consideration of these criteria if a valid objection is made accompanied by substantive evidence indicating that these criteria would not be met. The criteria do not apply to temporary water quality disturbances caused by construction, maintenance, or other activity requiring a "310" permit or similar permit.
2. DNRC shall notify discharge permit holders of new water use permit or change applications in the vicinity.

Options Considered But Not Recommended

1. Request the Attorney General's opinion on whether DNRC already has the authority to consider water quality in all permits and changes. In preparing this opinion, the Attorney General should consult both DNRC and DHES.
2. Delete the 4,000 acre-feet and 5.5. cubic feet per second limitation and apply the reasonable use criteria to all new water use permits and change of use applications.
3. Reduce the 4,000 acre-feet and 5.5 cubic feet per second limitation to something more reasonable — that is, so the public interest criteria would apply to more water use permit and change of use applications than under existing limitations.
4. Clarify that DNRC has the authority to condition or deny new water use permits and change of use applications by revising Section 85-2-311, MCA, to specify that:
   a) The proposed use of water will not degrade water quality in the watershed to the extent that it would unreasonably disrupt a prior appropriator's use.
   b) The proposed use of water will not adversely affect the water quality of the water in the watershed to the extent that the water right of a prior appropriator is rendered unusable for its prior use.
   c) The proposed use will take into account the effects on the quality of water for existing beneficial uses in the source of supply.
   d) The state's nondegradation policy, articulated in Section 75-5-303, MCA, will not be violated.
   e) DNRC should consider the "public interest" in all such transactions. The "public interest" could be left undefined or limited to a consideration of water quality.
   f) the groundwater allocation would not unreasonably interfere with beneficial use of the aquifer; and
   g) the application of quality criteria is technically and economically balanced.
5. Allowing water right holders and certain state agencies to object to new permits and changes on the basis of water quality.
6. Define minimum streamflows, by watershed, beyond which water use permits would be prohibited. This option could apply to:
   a) New water use permits only.
   b) Both new and existing water use permits.
7. Place a moratorium on new water use permits on "impaired" streams as identified in the biennial report prepared by DHES as required by section 305(b) of the federal Clean Water Act.
8. Consider offstream storage alternatives.

b. Water Allocation in the MPDES

Under the Montana Pollution Discharge Elimination System (MPDES), DHES issues discharge permits for point sources of pollution on the basis of the 7-day/10-year low flow in a particular river or stream. Once the discharge permits are issued, however, DNRC is free to continue granting water use permits for diversionary uses. In some situations, these additional permits for diversionary uses may reduce the streamflow below the 7-day/10-year low flow. In such cases, it is not clear whether the amount of discharge should be reduced or the additional water use permits should be curtailed.

Options Recommended

1. Allow DNRC to condition water use permits and change applications if the proposed use of water would reduce the ability of discharge permit holder(s) to satisfy effluent limitations. DNRC could condition to limit the use of permits or changes when the streamflow falls below the 7-day/10-year low flow.
2. DHES shall notify water right holders of new applications for MPDES permits in the vicinity. (MPDES

permits can not impair beneficial uses of prior appropriators.)

3. DHES shall consider present water use, existing water reservations, and planned future development on the stream when issuing MPDES permits.

4. Adopt model legislation to implement a state policy for source reduction of water pollution; and direct the Natural Resources Information System (NRIS) to work with the EPA technology transfer office to access scientific and technological developments to reduce and eliminate water pollutants.

Options Considered But Not Recommended

1. DHES should develop criteria for the issuance and review of water quality permits that take into account existing and future water uses and water rights.
   a) Require reevaluation of low flow values (7-day/10-year low flows) at the time each MPDES permit is renewed, which is every five years.
2. Require discharge permit holders to apply for an instream flow water use permit to maintain the level of flow necessary to satisfy effluent limitations.
3. Require discharge permit holders to apply for an instream flow water reservation to maintain the level of flow necessary to satisfy effluent limitations.
4. Allow DHES to object to new water use permits and changes in existing water rights, and allow DNRC to condition or deny such applications if they would affect the ability of the discharge permit holder to satisfy effluent limitations.
5. Allow discharge permit holders to purchase or lease existing water rights to maintain the level of flow necessary to satisfy effluent limitations.
6. Identify "stream segments of concern" (i.e., streams with low flow, water quality problems) and evaluate the impact of low flows on water quality.
7. Expand the water leasing program to abate MPDES problems.
8. Require an MPDES permit of any discharge with a discrete conveyance (e.g., tailings impoundments).
9. Expedite the water reservation process so that DHES would have reservations to protect water quality.

Issue 2—Administrative Coordination

There currently is no formal mechanism in place for integrating the management of water quantity and quality in Montana. DNRC is responsible for issuing and administering water use permits. DHES is responsible for issuing and enforcing water quality permits, and administering various programs designed to protect water quality. As mentioned previously, there is little to no coordination between these two state agencies in managing the state's water resources.

In addition to DNRC and DHES, several other local, state, federal, tribal, and regional governments play a role in the management of water quantity and quality. While these governments occasionally consult one another and work together on specific projects, no ongoing formal mechanism exists to integrate the management of water use and the protection of water quality between these various levels of government.

a. State Agency Coordination

Options Recommended

1. Initially, DHES and DNRC shall develop an administrative process to ensure that DNRC appropriately consult DHES during the water use permitting process, and that DHES appropriately consult DNRC during the water quality permitting process.
2. As a long term goal, merge the regulatory responsibilities for allocating water and protecting water quality, currently distributed among DHES, DNRC, and the departments of State Lands and Agriculture, into one department.

Options Considered But Not Recommended

1. Consolidate DNRC, DHES, and DFWP into one department to reduce duplication and provide a more efficient system for managing the state's natural and environmental resources.
2. Develop a "referral system" that would require DNRC to submit applications for water use permits to DHES, and for DHES to submit applications for water quality permits to DNRC.
   a) At a minimum, each department would have an opportunity to review and comment on the pending permit applications.
   b) DNRC and DHES also could be required to reach an agreement on the issuance of potentially problematic permits.
   c) DNRC also could be allowed to veto water quality permits, and DHES could be allowed to veto water allocation permits.
   d) Another slightly different alternative is to create an interagency permit review committee, with adequate funding and staff, to review potentially problematic permits.
   e) The state could designate one permit coordinator, perhaps a shared position between DNRC and DHES, to facilitate both the water quantity and quality permitting processes.

3. Develop a Memorandum of Understanding between DHES and DNRC with the following agreements:
   a) Allow DHES to work with DNRC on groundwater right permit applications associated with subdivisions or other public water and sewer systems under evaluation by DHES.
   b) Allow DHES and DNRC to initiate planning with local or other government entities on groundwater quantity and quality issues.
   c) Require DHES to notify DNRC when violations of water quality standards have been detected in an aquifer that could impact beneficial uses.
   d) Require DNRC to inform permit applicants of known water quality standard violations.
   e) Provide for joint decisions on water allocation and water quality permits for aquifers designated as controlled groundwater areas.

b. Intergovernmental Coordination

Options Recommended

None. Continue existing efforts to coordinate water quantity and quality management efforts among federal, state, local, and other government agencies.

Options Considered But Not Recommended

1. DNRC and DHES should notify and consult appropriate agencies and interested parties whenever an application is being considered for a water quantity or quality permit.
   a) A "memorandum of understanding" may be required to facilitate this process.
2. Appoint one state agency to serve as a clearinghouse both for water quantity and quality permits and to ensure that all potentially affected interests are informed and have an opportunity to participate in the permitting processes. DNRC and DHES could create a joint position to serve in this capacity.
3. Create an interagency council, including the directors of appropriate agencies, to meet regularly to discuss and resolve problems with the coordination of water quantity and quality permits.
4. Adopt the "coordinated resource management" approach that is used in several local areas to coordinate the management of natural resources among multiple jurisdictions.

Subsection B: Surface Water Issues

Issue 3—Cumulative Impacts

The water allocation process does not recognize or consider the cumulative impact of each water use permit on water quality. Although each water use permit may have minimal impact on the water quality in a particular stream, the cumulative impact of all water use permits in a particular watershed may create a water quality problem.

Options Recommended

1. DHES and DNRC should continue ongoing watershed-specific investigations, including modeling, that facilitate streamflow/water quality management plans. DHES and DNRC should review current and planned investigations to ensure that those watersheds receiving attention are the highest priorities. Joint funding, development, and administration by DNRC, DHES, and federal agencies of such investigations should be pursued.

Options Considered But Not Recommended

1. Identify the maximum amount of allowable pollution for each watershed as a supplement to water quality standards.
2. Enact an efficiency of use criterion for consumptive uses of water. This option could apply to:
   a) New water use permits only.
   b) Both new and existing water use permits.
3. Include the consideration of cumulative impacts in the "public interest criteria."

Issue 4—Water Reservations

Although Montana water law allows water reservations for water quality purposes, the security of such reservations is not totally guaranteed. All water reservations, including those for water quality purposes, must be reviewed at least once every 10 years and, if it is adequately demonstrated in a contested case hearing that the objectives of the reservations are not being met, the Board of Natural Resources and Conservation (BNRC) may revoke or modify the reservation. In addition, if the board finds that the total amount of an instream flow reservation for water quality or any other purpose is not needed to fulfill its purpose, and if the board also finds that a qualified applicant can show that its need outweighs the need of the instream reservation holder, the excess water may be reallocated to the competing applicant. This also would involve a contested case hearing process. The board may not reallocate such instream flow reservations more than once every five years.

Options Recommended

None. DHES can and does seek water reservations for water quality protection purposes. The existing water reservation process is an effective mechanism for integrating water quantity and quality.

Options Considered But Not Recommended

1. Lengthen the 10-year time frame between reviews of water quality reservations, or eliminate these reviews altogether.
2. Develop specific criteria that have to be satisfied to show that a reservation for water quality is not needed.
   a) Clarify that the burden to reduce a reservation for water quality purposes must be at a high threshold.
   b) Clarify that the initial burden of proof should be on the competing applicant.
   c) Require some type of economic compensation if reservations for water quality are reduced.
3. Expand the number and type of entities that may apply for a water reservation — specifically to include industrial users. This would allow industry to apply for instream flow reservations to maintain the minimum flows necessary to satisfy effluent discharge requirements. It also would allow industry the opportunity to reserve instream flows to meet future discharge needs.
4. Eliminate the authority of the BNRC to reallocate water reserved for instream flow purposes not more than once every five years. If this provision of the water reservation law is retained, it should be applied equally and fairly to all reservations, whether they are for instream or out-of-stream purposes.
5. Make reservations for water quality superior to existing water rights.
6. Impose stronger due diligence requirements on consumptive use (i.e., out-of-stream) water reservations. That is, if such a water reservation is not perfected within say 10 years, it no longer would be valid.

Issue 5—Basin Closure

While basin closure provides one mechanism to integrate water use and water quality considerations, only individuals with water rights can initiate the process for closing a basin to further appropriations. Other potentially affected interests that do not have water rights, such as industries, municipalities, outfitters, and recreationists, cannot initiate this process to protect their interests in a given stream or river. It also is not clear what the criteria are for closing a basin, and whether water quality is and/or should be such a criterion.

Options Recommended

1. Allow DHES to petition DNRC to close basins on the basis of water quality concerns consistent with recommendations under Issue 1.

Options Considered But Not Recommended

1. Allow potentially affected interests to petition DNRC to close basins on the basis of water quality concerns.
2. Allow the Department of Fish, Wildlife and Parks to petition DNRC to close basins on the basis of water quality concerns.
3. Develop specific criteria for closing basins to further appropriations.
   a) The criteria should include, at a minimum, a reference to water quantity and quality, along with other considerations.
   b) Develop a proactive mechanism to "trigger" basin closure. For example, conduct a periodic review of the status of water quality in all watersheds to determine whether basin closure is appropriate.
4. Close all basins now.

Issue 6—Non-Point Source Pollution

The largest unregulated pollution of the state's water comes from non-point sources such as agriculture, mining, forestry, urban development, subdivision development, and construction. If the degraded water adversely affects a beneficial use of the receiving water, DHES has the authority under the Water Quality Act to regulate the user. It is less clear whether DNRC has the authority to regulate the water use or the water user.

DHES currently is implementing a voluntary non-point source management program utilizing (1) projects to demonstrate the application of "best management practices" adopted for each source of pollution; and (2) the implementation of education programs to control non-point source pollution. DHES is relying on voluntary approaches to reduce non-point sources of pollution; the most effective approaches to reduce non-point sources of pollution have not been determined. Each demonstration project is being monitored to determine the effectiveness of best management practices, but currently there is no comprehensive system in place for monitoring the impacts of non-point sources of pollution.

Options Recommended

1. Develop best management practices for all activities that contribute to non-point pollution, particularly subdivisions and construction activities. The development of best management practices should include input by the affected industries, and generally follow the procedures used in the implementation of Montana's recently developed forestry best management practices.

2. Identify and implement incentives to implement best management practices. Incentives could include:
   a) Educational programs and technical assistance.
   b) A state revolving fund with low or no-interest loans.
   c) Tax incentives.
3. Develop a comprehensive system to evaluate the compliance and effectiveness of best management practices. At a minimum, the system should include:
   a) A mechanism for determining whether best management practices have been applied. At a minimum, require annual best management practices audits, within priority watersheds identified under recommended Option 1 under Cumulative Impacts, for every category of non-point pollution, including forestry, mining, and agriculture. These audits should be conducted by an interdisciplinary committee that includes all affected interests, as currently is the case with the timber industry.
   b) Criteria for determining the effectiveness of best management practices once they have been applied.
   c) Demonstration projects to evaluate best management practices.
   d) A mechanism to appropriately modify and improve the best management practices based upon the audits and evaluation process.
4. If the three steps previously outlined are not successful because of a lack of voluntary participation within the affected industries, institute a regulatory approach to the control of non-point sources of pollution.
5. Provide state funds to match federal funds to implement and expand existing non-point source protection programs, including monitoring and enforcement.

Options Considered But Not Recommended

1. Utilize existing groups in local watersheds, such as the conservation districts, to monitor and prevent non-point sources of pollution.
   a) The Natural Resource Information System (NRIS) could support these local watershed groups by developing a data base and associated maps showing the location and extent of non-point sources of pollution.
2. Support reauthorization of the Clean Water Act to fund non-point source assessment and demonstration projects and the Clark Fork River basin non-point source pollution projects.

Subsection C: Ground Water Issues

Issue 7—Controlled Ground Water Areas

Controlled groundwater areas may be established by BNRC based on a proposal from the department or by a petition of at least 20 or one-fourth of the users (whichever is less) of groundwater in a groundwater area. In some instances, state or local agencies may have data which indicates a public health threat; however, these entities are not currently eligible to bring these concerns before BNRC.

Options Recommended

1. Amend the Water Use Act (Section 82-2-506, MCA) to allow state or local agencies, including local water quality districts, to petition BNRC, based on public health concerns, to establish a controlled groundwater area. The board shall give special consideration to aquifers designated as sole source aquifers.
2. Amend the controlled groundwater area statute (Section 85-2-506(2)(e), MCA) to broaden water quality considerations by allowing a petition based on a showing that excessive groundwater withdrawals would cause contaminant migration "or" a degradation of groundwater quality within the groundwater area.

Options Considered But Not Recommended

1. Require all wells to obtain permits prior to drilling to allow review for water quality and quantity impacts.
2. Develop a process through which a local conservation district would be notified prior to a well being drilled. Through a coordinated effort among local, state, and federal agencies with input into groundwater management, the conservation district would issue a permit to proceed. This would create a local data base listing locations of drilled wells and abandoned wells, potential groundwater problems, and any drilling activities underway in the area. When water wells must be drilled under emergency conditions, a process would be developed that would not delay necessary drilling.

Issue 8—Long-term Planning

Montana, like many western states, historically has reacted to groundwater problems in a piecemeal fashion, creating a number of programs and regulatory responses that might duplicate each other. However, it is more cost-effective to prevent groundwater problems than to react to overdrafts and contamination after the fact. A proactive approach to groundwater management is possible to varying degrees. The focus would be on prevention, public

education, streamlining regulation, and more effective and efficient coordination of groundwater quality-quantity management.

Options Recommended

1. The state shall support the proposed State Ground Water Coordination Committee. The committee would include representatives of state agencies involved in groundwater-related activities, and may include federal and local governments, public and private interest groups, and interested citizens. The committee would work in conjunction with the state water planning process. The purpose of the committee would be to develop a state groundwater plan to coordinate groundwater management and identify and address management gaps. The goal would be to prevent groundwater pollution and aquifer overdraft in order to sustain current and future beneficial uses.

   a) The committee will participate in the new EPA process for developing a comprehensive state groundwater protection program. This process should ensure that Montana assumes the lead role and has final jurisdiction in implementing the program.

   b) The committee, through its member agencies, will coordinate with the conservation districts to develop and implement nonregulatory, local groundwater management plans.

2. The legislature should continue to support the intent and appropriate funding for implementation of the Montana Ground Water Assessment Act to facilitate groundwater management and planning.

Options Considered But Not Recommended

1. Legislate the creation of local groundwater management areas. The purpose of groundwater management areas would be to allow planning for specific aquifers in order to (1) protect the quality and quantity of groundwater; (2) meet future water needs while protecting existing water rights; and (3) provide for effective and coordinated management of the groundwater resource.

2. Amend the law to allow local water quality districts to request basin closure, and/or object to new permits based on water quantity or quality concerns.

3. Develop a comprehensive groundwater management plan by conducting a study to (1) evaluate existing Montana water laws, and (2) develop the most effective and efficient process and organizational structure for managing groundwater in Montana at the state and local levels (disregarding current agency responsibilities). A part of the study would evaluate those western states that have water resource agencies with both water quantity and quality jurisdiction. Based on these assessments, determine whether there is a better organizational framework for management of the state's groundwater resource.

Issue 9—Well Construction Enforcement

More than 2,000 water supply wells are drilled and constructed each year in Montana. If not properly constructed and grouted, wells may allow pollutants from land surfaces and from other aquifers to degrade or contaminate groundwater systems. The Board of Water Well Contractors has adopted minimum well construction standards to prevent contamination in order to protect the water supply of well users. DNRC water resources regional office staff are used to enforce well construction standards. Currently, DNRC staff must contact a driller in advance to determine the location for an evaluation. This procedure hinders groundwater quantity and quality management because it does not allow for unannounced random inspections or proper enforcement.

The Board of Water Well Contractors licenses well drillers and investigates complaints. During 1991, 23 written complaints were filed by well owners against 15 drillers. The complaints concerned improper grouting, pumping rates less than those shown on well logs, failure to case a hole, failure to complete a well properly, and muddy well water. Several job sites were closed down for failure to have a licensed individual on site. Approximately 50 construction standard violation letters were mailed as the result of a DNRC regional office review of well log reports.

Options Recommended

1. Direct the Board of Water Well Contractors to require all drillers known to have recently violated construction standards to report the location of all operations to DNRC prior to drilling. The Board of Water Well Contractors should require all drillers, on a rotating basis, to give prior notice of their drilling locations to allow for random inspections.

Options Considered But Not Recommended

1. Authorize an adequate number of well inspector positions that are independent and qualified. Place the positions in DNRC regional offices to enforce well construction standards. The inspectors will report to the Board of Water Well Contractors, which retains the authority for action against violators. Funding options include the legislature (general fund), fees assessed on water well owners, or fees assessed on well drillers.

2. Require well drillers to call DNRC, toll free, prior to drilling and constructing a water well or to send in a notice card 72 hours in advance. This would allow the regional office staff to randomly check about 10 percent of the wells under construction to ensure compliance with well construction standards. The costs of implementing this option would be associated with the toll-free number and travel time for investigations.
3. Require local county governments to enforce compliance with well construction standards. This approach would be similar to that in place for lifting septic system restrictions and meeting drain field construction standards. Since more than 90 percent of water wells drilled are associated with domestic home use, local county inspectors would be responsible for ensuring compliance both with water well and septic system construction standards.
4. Provide a voluntary service where an authorized county or regional office official can, upon request, inspect and ensure compliance with proper water well construction standards for a fee.

Issue 10—Unplugged Holes

It is not known how many abandoned or unused mineral exploration, geotechnical, or seismic holes exist in Montana. Estimates vary greatly, but agencies and counties agree that thousands of unplugged bore holes exist throughout the state. Abandoned bore holes that penetrate more than one aquifer will result in the drawdown of one aquifer as it flows down gradient into another aquifer. The intermixing of aquifers results in water-level and hydrostatic-pressure declines in the up-gradient aquifer.

The aquifers commonly will have differing water quality and hydrostatic pressures, so more pristine groundwater systems can be degraded by mixing with an aquifer of lesser quality. Land use practices may degrade a shallow groundwater system that can flow down gradient through unplugged holes into a deeper system and introduce contaminants.

Currently, counties are responsible for locating and plugging abandoned holes when a liable company or individual cannot be found. Many times, holes were left by exploration operations from the early to mid-1900s, and the companies no longer exist. Counties do not have the resources to address abandoned bore holes.

The Department of State Lands and the Board of Oil and Gas do have hole-plugging regulations for current operations. However, plugging requirements vary greatly for different types of holes and are enforced inconsistently. Given the probable water quality and quantity impacts to aquifers throughout Montana, the state should take the lead in providing consistent regulations and in plugging holes to protect groundwater for current and future beneficial uses.

Options Recommended

1. Direct the Department of State Lands in the area of mining, and the Board of Oil and Gas in the area of oil and gas, to ensure that abandoned or unused mineral exploration, geotechnical, and seismic holes are properly plugged. A high priority should be assigned to areas with known problems from unplugged holes. Incorporate information from public and private sources into an inventory of abandoned and unused bore holes.
2. Encourage use of the resource indemnity trust fund to address nonrenewable resource impacts.
3. The DSL and Board of Oil and Gas shall investigate all hole-plugging requirements and develop a recommendation for a consistent, statewide hole-plugging program. The recommendations should include developing plugging requirements for geotechnical holes and other holes when no regulations exist, and encouraging research into economically feasible and environmentally sound plugging methods and materials.

Options Considered But Not Recommended

None.

Issue 11—Protection from Mining Impacts

Protection of groundwater quality and quantity is an important issue associated with mining. Mining activities, if not properly conducted, have the potential to contaminate groundwater or deplete aquifers. Some mining operations use chemical reagents such as cyanide, acid bromide, and acid chloride, which can leach from the site and pose water quality problems. In addition, mine tailings can leach residual reagents as well as heavy metals such as arsenic.

Currently, mine groundwater discharge plans are reviewed by the Department of State Lands, with oversight by DHES. The Department of State Lands investigates complaints of water quantity and quality impacts related to mining. If a complaint related to a coal mine is filed, the Coal and Uranium Bureau must report its findings to the complainant within 90 days of receipt of the complaint. If mine-related activities are responsible for the loss either of water quantity or quality, suitable water must be provided immediately. If the unsuitable water is not permanently replaced, the operator's mine permit will be suspended until substitute water is made available.

If a complaint related to a hard rock mine is filed, the Hard Rock Bureau processes the complaint as rapidly as possible, although the Metal Mine Reclamation Act does not define time frames and does not require immediate water replacement. However, the Metal Mine Reclamation Act does provide for an owner to recover damages for a water loss of quantity or quality. The Hard Rock Bureau is required to investigate the complaint and may require the operator to conduct additional studies. If the finding concludes that the loss of water quality or quantity is caused by the operation, the operator must replace the water in like quality and quantity, and the owner can recover damages. If the water is not replaced, the operator's permits may be suspended until substitute water is supplied.

Due to the often-complex nature of the groundwater resource, ensuring its protection through statutes, regulations, and investigative procedures may be difficult. When investigating complaints, the agencies may find that baseline studies have not always been adequate to resolve specific questions of impacts to groundwater quality and quantity that arise after operations begin.

Options Recommended

1. Amend the administrative rules for the Metal Mine Reclamation Act (Section 26.4.100 et seq., ARM) to include the Hard Rock Bureau guidelines which define the scope and parameters of study for baseline investigations.
2. The Department of State Lands shall encourage mining companies to solicit citizen participation during the early stages of large-scale mining and exploration programs prior to application submittal. Public input during the development of baseline inventory plans may protect both mining companies and citizens during investigations of impacts to groundwater resources once activities begin. While it is recognized that the Department of State Lands must retain final approval of baseline data, public comments should be incorporated into the planning process.
3. Due to the complexity and late introduction of this issue in the planning process, amendments to the Metal Mine Reclamation Act are not recommended at this time. Recognizing the depth and importance of mining-related concerns, the following five options, considered but not recommended, should be taken up for further study in a future state water planning cycle or by a legislative body as appropriate.

Options Considered But Not Recommended

1. Amend the Metal Mine Reclamation Act to require adequate bonding to replace or restore the quantity or quality of water resources that are reasonably foreseen to be at risk.
2. Amend the Metal Mine Reclamation Act to establish appropriate time frames for hard rock complaint response and resolution.
3. Amend the Metal Mine Reclamation Act to establish proper limitation of the confidentiality clause pertaining to small miners exclusions and exploration licenses to specific proprietary geologic information. Define proprietary geologic information and large-scale exploration projects through the rule-making process.
4. Amend the Metal Mine Reclamation Act to allow the Department of State Lands to collect fees from mining companies to fund investigations of alleged mine-related groundwater damages.
5. Authorize the Department of State Lands to use interest on mining bonds to fund investigations of alleged groundwater damages from mining operations.

Issue 12—Information/Education

Home, ranch, and business owners throughout Montana are faced with many decisions that affect their water quality and quantity such as well location, proper well construction, quality testing, and septic system placement. It also may be difficult for citizens to comply with laws and regulations when they are not aware of pertinent information; for example, where to properly dispose of waste oil or how often they should pump their septic tanks. Widespread dissemination of resource-related information would assist individuals in protecting their water resources.

Options Recommended

1. The Montana Water Course, in consultation with appropriate agencies, University Extension, Ground Water Information Center, and Natural Resources Information System, shall develop avenues for the dissemination of water-related information and for water resource public education. These strategies may include:
   a) Requesting the Water Education for Teachers (WET) program to incorporate information on groundwater protection strategies.
   b) Working with counties, conservation districts, realtors, county extension agents, and other local entities to distribute DNRC's well brochure and other informational materials.
   c) Developing radio and television public service announcements related to water quality and quantity conservation.
   d) Providing a toll-free number to answer or direct water-related questions.

2. Require state agencies to deposit groundwater pollution data and information in the Natural Resources Information System for general access.

Options Considered But Not Recommended

1. Hire a water education/information specialist.

PLAN IMPLEMENTATION

Legislative Action

The legislature should amend Section 85-2-311, MCA, to specify that DNRC has the authority to condition or deny new water use permits or change applications based on a preponderance of the evidence and a consideration of whether and to what extent: (1) the water quality of a prior appropriator would be adversely affected; (2) water quality in the source of supply, as defined by the primary drinking water standards of DHES, would be adversely affected; or (3) the ability of discharge permit holder(s) to satisfy effluent limitations would be adversely affected. Applications for changes would only be subject to considerations of these criteria if a valid objection is made accompanied by substantive evidence indicating that these criteria would not be met.

The legislature should adopt legislation that allows DNRC to condition water use permits and change of use applications if the proposed use of water would reduce the ability of discharge permit holder(s) to satisfy effluent limitations. The legislation should specify that DNRC could condition to limit the exercise of the permits or changes when the streamflow falls below the 7-day/10-year low flow.

The legislature should adopt model legislation and establish a state policy for source reduction of water pollution.

In a future session as appropriate, the legislature should reorganize state agency duties to merge the regulatory responsibilities for allocating water and protecting water quality, currently distributed among DHES, DNRC, and the departments of State Lands and Agriculture, into one department.

The legislature should amend Section 85-2-319, MCA, to allow DHES to petition DNRC to close basins to additional appropriations on the basis of water quality concerns.

The legislature should provide appropriate funding to expand the state's non-point source pollution program, including monitoring and enforcement.

The legislature needs to amend the Water Use Act (Section 85-2-506, MCA) to allow state and local agencies and local water quality districts to petition BNRC to establish a controlled groundwater area.

The legislature needs to amend the Water Use Act (Section 85-2-506(2)(c), MCA) to replace "and" with "or" so that a petition for a controlled groundwater area may be based on a showing that excessive groundwater withdrawals would cause contaminant migration "or" a degradation of groundwater quality.

The legislature needs to support the intent of and appropriate funding for implementation of the Montana Ground Water Assessment Act.

The legislature needs to direct the Board of Water Well Contractors to require all drillers known to have recently violated construction standards to report the location of all operations to DNRC prior to drilling, and further require all drillers, on a rotating basis, to give prior notice of their drilling locations to allow for random inspections.

The legislature needs to allocate appropriate resource indemnity trust funds to address nonrenewable resource impacts including a plugging program for abandoned and unused bore holes.

Administrative Action

DNRC shall develop a process to notify discharge permit holders of new water use permit or change of use applications in the vicinity.

DHES shall develop a process to notify water right holders of new MPDES applications in the vicinity.

DHES shall develop a process to consider present water use, existing water reservations, and planned future development on the stream when issuing MPDES permits.

DHES and DNRC shall develop an administrative process to ensure that DNRC appropriately consult DHES during the water use permitting process, and that DHES appropriately consult DNRC during the water quality permitting process.

The Natural Resources Information System shall work with the EPA technology transfer office to access and make available information on new scientific and technological developments to reduce and eliminate water pollutants.

DHES and DNRC shall continue ongoing watershed-specific investigations, including modeling, that facilitate streamflow/water quality management plans. The departments shall review current and planned investigations to ensure that investigations are conducted in the highest priority watersheds.

DHES shall develop "best management practices" for all activities that contribute to non-point source pollution; identify and implement incentives to implement "best management practices;" develop a comprehensive system to evaluate the effectiveness of "best management practices;" and implement a regulatory approach to controlling

non-point sources of pollution if the voluntary measures previously outlined are not adequately implemented by affected industries.

BNRC needs to give special consideration to sole source aquifers in establishing controlled groundwater areas.

DHES and DNRC need to create a State Ground Water Coordination Committee. The committee would include representatives of state agencies involved in groundwater-related activities, and may include federal and local governments, public and private interest groups, and interested citizens. The committee would work in conjunction with the state water planning process.

The State Ground Water Coordination Committee shall develop a state groundwater plan to coordinate groundwater management, and identify and address management gaps. The initial tasks of the committee are to:

1. Participate in the EPA groundwater initiative by facilitating the development of a comprehensive state groundwater protection program.
2. Cooperate with conservation districts in the development and implementation of local groundwater management plans.

The Board of Water Well Contractors shall establish a system requiring all drillers known to have recently violated construction standards to report the location of all operations to DNRC prior to drilling. The Board should require all drillers, on a rotating basis, to give prior notice of their drilling locations for a specified time to allow for random inspections.

DNRC needs to develop an efficient system to receive drilling locations from well drillers for use by well inspectors.

The Department of State Lands and the Board of Oil and Gas shall initiate a program to plug abandoned or unused mineral exploration, geotechnical, and seismic holes. Efforts should focus on areas with known problems from unplugged holes. The department and board will collect information from public and private sources to inventory abandoned and unused holes.

The Department of State Lands and Board of Oil and Gas shall investigate mineral exploration, geotechnical, and seismic hole-plugging requirements, and develop recommendations for consistent standards. The recommendations should include plugging requirements for geotechnical and other holes when no regulations exist. The department and board should encourage research into economically feasible and environmentally sound plugging materials.

The Department of State Lands shall amend the Metal Mine Reclamation Act rules (Section 26.4.100 et seq., ARM) to include the Hard Rock Bureau guidelines for hydrologic studies.

The Department of State Lands shall encourage mining companies to involve the public at the earliest stages of large-scale mining and exploration programs prior to application submittal.

The Montana Water Course needs to request the Water Education for Teachers program to incorporate information on groundwater protection strategies; work with counties, conservation districts, realtors, county extension agents, and other local entities to distribute DNRC's well brochure to new home builders and other citizens; develop public service announcements related to groundwater quality and quantity conservation; and provide a central contact to direct water-related questions.

DHES , DNRC, the Department of State Lands, and the Department of Agriculture need to deposit groundwater pollution data in the Natural Resources Information System for general access.

Financial Requirements and Funding Strategies

The State of Montana's current fiscal problems were recognized in the development of these recommendations. Recommendations were made to resolve the issues as effectively and inexpensively as possible. Also considered was whether doing less now could lead to much greater costs in the future. For example, there is some federal interest in addressing this issue if state water management efforts are found lacking. If nothing is done, more drastic federal measures, with larger accompanying costs, could be imposed.

Many of the costs associated with implementing these recommendations will have to be absorbed within existing budgets, but some of the recommendations cannot be implemented without additional permanent staff. Two new positions are proposed at an additional cost of about $100,000 per year, including benefits. It will be up to the Legislature to decide whether the public benefits are worth this and other less tangible costs.

The first new position is proposed to implement the recommendations for coordinating the water use and MPDES permitting processes. This position would be jointly funded by DNRC and DHES, and initially would develop processes for notification of water rights and discharge permit holders, considering future water use in the MPDES permitting, and state agency coordination. In the long term, this position would provide technical expertise for the consideration of water quality impacts in the evaluation of water use permit applications, and future water use considerations in the evaluation of MPDES permit applications.

The second new position is proposed to implement the recommendations for Issue 6, Non-Point Source Pollution. This position would be assigned to DHES. Almost all of the funds currently provided for non-point source pollution programs come from the federal government as EPA grants. Funds used for this new position would be used to match additional EPA grants and eliminate the need for DHES to compete for state grant funds through the DNRC-administered Water Development, Renewable Resource, or Reclamation and Development programs.

One-half of an FTE within DHES has already been reallocated to implement some of the recommendations under Issue 8; specifically, to develop the Comprehensive State Ground Water Plan. This position will provide staff assistance to the State Ground Water Coordination Committee, and is being funded with EPA grant funds.

Other recommendations should be implemented with existing funding from the Water Development, Renewable Resource, and Reclamation and Development programs, or from direct appropriations from the RIT interest account. These include the recommendations to address issues 3, 8, 10 and 12 for watershed specific investigations, general resource assessment, abandoned hole plugging, and public education projects.

There will be some definite but unmeasurable costs associated with implementing the other recommendations, but no funding increases are requested for doing so. Examples of these are the costs to revise permit application forms, additional notification costs (mail), staff time to resolve objections related to adverse water quality affects related to new water use permits and changes (depending on the number of objections), and hearings costs to consider additional basin closures and controlled groundwater areas (depending on the number of petitions). Costs will also be absorbed by private individuals for such things as complying with additional information requirements in completing and defending permit applications, delays in processing permits because of additional review requirements, and for well drillers having to notify DNRC for random inspections.

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Plan Implementation Summary

Action	Responsibility	Deadline
SUBSECTION A: General Integration Issues		
Issue 1—Coordinate Permitting		
Clarify DNRC authority to consider adverse water quality affects in permit and change process	Legislature	May 1993
Develop process to notify discharge permit holders and water right holders of new applications when appropriate	DNRC and DHES	Dec. 1993
Implement a source reduction pollution policy	Legislature	May 1993
Access EPA technology transfer office	NRIS	July 1993
Develop process to consider present and future water uses in DHES permit decisions	DHES and DNRC	Mar. 1994
Issue 2—Administrative Coordination		
Develop consultation process	DNRC and DHES	Sept. 1993
Merge all water regulatory responsibilities	DHES,DNRC,DoAg, and DSL	May 1995
SUBSECTION B: Surface Water Issues		
Issue 3—Cumulative Impacts		
Continue watershed-specific investigations and planning	DHES and DNRC	Ongoing
Issue 4—Water Reservations		
Continue existing process	BNRC	Ongoing
Issue 5—Basin Closure		
Allow DHES to petition to close basins	Legislature	May 1993
Issue 6—Non-point source pollution		
Develop best management practices (BMP)	DHES	Mar. 1994
Identify and implement BMP incentives	DHES	Mar. 1994
Develop BMP evaluation system	DHES	Mar. 1994
Implement BMP regulation	DHES	As Needed
Provide state funding for NPS program	Legislature	May 1993
SUBSECTION C: Ground Water Issues		
Issue 7—Controlled Ground Water Areas (CGWA)		
Allow state and local agencies to petition for CGWA	Legislature	May 1993
Allow CGWA petition based on migration "or" degradation	Legislature	May 1993
Issue 8—Long-term planning		
Establish State Ground Water Coordination Committee (SGWCC)	DHES and DNRC	Dec. 1992
Develop a state comprehensive groundwater plan	SGWCC	Dec. 1994
Assist conservation districts with local groundwater planning	SGWCC	As needed
Support funding for groundwater assessment program	Legislature	May 1993
Issue 9—Well Construction Enforcement		
Develop drilling notification system	BWWC and DNRC	Mar. 1993
Issue 10—Unplugged Holes		
Initiate hole-plugging program and inventory	DSL and Board of Oil & Gas	Dec. 1992
Encourage use of RIT funds for nonrenewable resource impacts	Legislature	May 1993
Develop consistent hole-plugging requirements	DSL and Board of Oil & Gas	Dec. 1993
Issue 11—Protection from mining		
Amend rules to reflect hydrologic study guidelines	DSL	Mar. 1993
Encourage mining companies to obtain early public input	DSL	Ongoing
Issue 12—Information/Education		
Initiate increased avenues for water-related information/education	Montana Water Course	Dec. 1992
Initiate reporting of groundwater data to NRIS	All agencies & NRIS	Dec. 1992

APPENDIX A:
Background

BACKGROUND

Water Use Law

Water use in Montana is guided by the Prior Appropriation Doctrine—that is, first in time is first in right. A person's property right to a specific quantity of water depends on when the use of water began. The first person to use water from a source established the first right, the second person could establish a right from the water left, and so on. During dry years, the person with the first right has the first chance at available water to the get the full amount of that right. The holder of the second right would have the next chance, and so on. In addition, the water user's water right is limited to the amount of water that is beneficially used.

The 1973 Montana Water Use Act significantly changed the water rights laws in a number of ways. First, all water rights existing prior to July 1, 1973 were to be finalized through an adjudication process in state courts. Second, a permit system was established for obtaining water rights for new or additional water developments. Third, a centralized records system for all water rights was established. (Prior to 1973, water rights were recorded, but not comprehensively or consistently, in county courthouses throughout the state.) Finally, a system was provided for public entities to reserve water for future beneficial uses or to maintain minimum streamflows.

In 1979, the legislature passed Senate Bill 76, modifying the statutes that governed how the pre-1973 water rights would be adjudicated. The new law required that everyone claiming those existing water rights had to submit those claims to the Department of Natural Resources and Conservation (DNRC). More than 200,000 claims were received. Since all of these claims cannot be adjudicated at once, the claims are being decreed systematically by drainage basin. Each claim is examined by DNRC and the Montana Water Court for completeness and accuracy prior to issuance of a decree (or decision).

New water users must apply for a permit from DNRC, with certain exceptions. The permit must be applied for and received before construction of diversion begins or water is diverted from any surface water source. The applicant must provide evidence concerning the proposed system design and operation, water availability, and the effects on existing water rights.

The exceptions to the general permitting requirements have to do with the amount of water being used. Small livestock reservoirs or pits holding less than 15 acre-feet of water and located on non-perennial flowing streams may be constructed first and applied for within 60 days of completion. A permit then will be issued. Also, no permit is required to develop a well or spring producing 35 gallons per minute or less, however, a notice of completion must be filed on these wells to establish a water right.

Large new appropriations have to meet more stringent approval requirements. Groundwater appropriations of more than 3,000 acre-feet per year, except for municipal or other public water supplies or for irrigation of cropland owned and operated by the applicant, must be approved by the legislature. Applications to appropriate 4,000 acre-feet a year and 5.5 cubic feet per second or more assume a higher burden of proof and, in addition to being a beneficial use, must be a "reasonable" use, subject to more stringent criteria.

It also is possible to change a water right to a new or different use and transfer it to another person. Changes in water rights must be approved by DNRC, with that approval dependent on the applicant proving that criteria similar to those for a new appropriation will be met. Again, except for very large new appropriations or changes, those criteria do not include a consideration of water quality effects.

Public entities, such as the Department of Health and Environmental Sciences (DHES), can apply for water reservations for future uses, including needs for maintaining a minimum instream flow for water quality dilution purposes. Such water reservations have priority as of the date a correct and complete application is received, unless special legislative provisions apply. Instream flow reservations also are subject to a statutory limit of one-half the average annual streamflow on gauged streams.

As water supplies become fully appropriated, there are mechanisms in the law to limit new appropriations further. Basins can be "closed" to new appropriations by the legislature or through rulemaking by DNRC upon receipt of a petition by the current water users. The petition must show, and DNRC must determine, that there are no unappropriated waters in the source of supply, the rights of prior appropriators will be adversely affected by further appropriations, or that further uses will interfere unreasonably with other planned uses or developments for which a permit has been issued or for which water has been reserved.

The second mechanism for placing greater controls over heavily appropriated waters is through controlled groundwater areas. It is possible to close an aquifer to further appropriations or restrict or condition water allocations. Controlled groundwater areas can be created by the Board of Natural Resources and Conservation by petition of water users or upon the suggestion of DNRC. Controlled groundwater areas may be created if groundwater withdrawals are in excess of recharge, excessive withdrawals are expected in the future because of recent consistent and significant increases in withdrawals, disputes in priority rights or amounts of use are in progress, groundwater levels are declining or have declined excessively, or if contaminant migration and a degradation of groundwater quality are occurring because of excessive withdrawals.

Water Quality Protection Law

Numerous laws and regulatory programs in Montana control activities to protect water quality. There are laws that regulate discharges to surface water, streambed disturbance, mining operations, hazardous waste, underground storage tanks, septic systems, and almost every other activity that poses a threat to water quality. Most of these laws and programs are administered by DHES.

The Water Quality Act (Section 75-5-101, MCA) is the primary water pollution control authority in Montana. The Act states that it is public policy to

> conserve water by protecting, maintaining, and improving the quality and potability of water for public water supplies, wildlife, fish and aquatic life, agriculture, industry, recreation and other beneficial uses; and to provide a comprehensive program for the prevention, abatement and control of water pollution.

To help implement water quality protection programs, DHES has adopted water quality standards. The standards establish maximum allowable changes in surface water quality based on the uses of that water, and establish a basis for limiting the discharge of pollutants. The water quality standards are designed to protect existing and future beneficial uses of water.

The Montana Pollution Discharge Elimination System (MPDES) focuses on point sources of pollution to surface water. Under this system, DHES issues permits for point sources of pollution to ensure compliance with water quality standards.

The non-point source pollution program addresses non-point sources of pollution resulting from land-use activities. Under this program, DHES has developed a non-point source pollution management program as required by Section 319 of the federal Clean Water Act. The management program, which has been approved by the Environmental Protection Agency (EPA), emphasizes demonstration projects and education on the implementation of "best management practices" and other methods to reduce non-point sources of pollution. DHES is actively implementing the program, including monitoring and evaluating best management practices.

DHES also is responsible for administering Section 401 of the federal Clean Water Act. This means that any activity requiring a federal permit or license must be certified by DHES as in compliance with Montana's water quality standards. For the most part, this authority applies to federal dredge and fill permits (404 permits) and activities requiring licenses from the Federal Energy Regulatory Commission, such as hydroelectric dams.

Private activities that disturb the banks or beds of streams are regulated by local conservation districts under the "310" law. Such activities include temporary disturbances, such as construction or maintenance activities for irrigation diversions.

The 1991 Legislature also provided for creation of local water quality districts. Such districts have limited regulatory authority, and are primarily intended to provide funding to locally monitor and plan for the protection of water quality sources of particular concern to the people in those areas.

The Montana Ground Water Pollution Control System (MGWPCS) (Section 16.20.1001, ARM) is a regulatory program to control all otherwise unregulated sources of groundwater pollution. Important aspects of the MGWPCS rules are groundwater quality standards, a nondegradation requirement, and a permit system. Sources of groundwater pollution that obtain permits from other programs or agencies, such as for hazardous waste treatment facilities or mines, are not required to obtain a MGWPCS permit. However, those operations must satisfy the MGWPCS standards and the nondegradation policy. While the nondegradation policy applies to groundwater, existing data is inadequate to determine the quality of groundwater on a regional basis.

The laws protecting the quality of domestic (or drinking) water are administered by DHES and include the Public Water Supply Act (Section 75-6-101, MCA) and the Sanitation in Subdivisions Act (76-4-101, MCA). Water systems that serve 10 or more families or 25 or more persons at least 60 days a year are considered public water supplies and must be approved under the first act. Individual and multiple-family water supply systems constructed on subdivided parcels of less than 20 acres are subject to DHES review under the latter act.

Groundwater quality also is addressed in the Agricultural Chemical Ground Water Protection Act passed by the 1989 Legislature. Under this Act, DHES is responsible for

developing and enforcing groundwater quality standards for agricultural chemicals. DHES also is charged under this Act with monitoring, promoting research, and providing public education in cooperation with universities and other state agencies. The Department of Agriculture is to develop and enforce agricultural chemical groundwater management plans aimed at preventing groundwater contamination from agricultural chemicals. Both agencies are publishing rules to implement their respective responsibilities under this Act.

The Department of State Lands regulates mining operations to minimize and reclaim impacts to groundwater quality and quantity. Both the Department of State Lands and DHES ensure that mining operations are conducted in compliance with the Montana Environmental Policy Act and the Water Quality Act. Coal mining permit applications must include a detailed description of pre-mine hydrology and a reclamation plan that minimizes "disturbance to the hydrologic balance at the mine site and in associated off-site areas and to the quality and quantity of water in surface water and groundwater systems both during and after..." mining (Section 82-4-231, MCA). Coal and uranium prospecting operations must be conducted to completely avoid degradation or diminution of any existing or potential water supply.

Hard rock mining in Montana is regulated under the Metal Mine Reclamation Act (82-4-301, MCA) and the Water Quality Act. As with coal applications, hard rock permit applications must include baseline studies that characterize the existing hydrologic regime. In addition, hard rock applications must include operating and reclamation plans that demonstrate how surface and groundwater will be protected to ensure long-term compliance with Montana's Water Quality Act. These plans are supplemented by monitoring requirements that agencies use to track the effectiveness of prior planning and implementation. Recovery of damages for a water loss in quantity or quality is provided for if an investigation establishes that a hard rock mining operation is responsible for the loss.

Water Quality Considerations in Water Quantity Allocation

Water quality is integrated into the allocation of water in three specific ways. The first is through the reasonable use criteria (Sections 85-2-311 and 402, MCA). DNRC must consider impacts to water quality for any water use permit or change applications involving more than 4,000 acre-feet per year and 5.5 cubic feet per second. The reasonable use criteria have not been used to deny or condition any new permits or changes.

The second way in which water quality is integrated into the water allocation process is through the water reservation process. The water reservation process allows unappropriated water to be reserved for a variety of purposes, including water quality (Section 85-2-316, MCA). DHES applied for and received a water reservation for water quality purposes in the Yellowstone River basin, and in the upper Missouri River basin above Fort Peck Reservoir.

It also is possible to close a groundwater aquifer to further appropriations or restrict or condition groundwater allocations on the basis of water quality concerns by establishing a controlled groundwater area. Only two controlled groundwater areas have been created sine the law was passed in 1967: South Pines near Terry and Larson Creek in the Bitterroot drainage. No controlled groundwater areas have been created due to water quality concerns.

Water Quantity Considerations in Water Quality Protection

Water use considerations are integrated into water quality protection considerations in limited ways. Generally, water quality protection considers the levels and amounts of existing water use, but does not consider the needs for additional water consumption in the future.

Surface water quality standards for specific stream reaches are classified by the types of beneficial uses the water is intended to support. Waters that currently support uses requiring higher qualities of water assume higher standards of protection. Over time, it is intended that all waters will meet the highest standards for uses which they would naturally be able to support. But in attaining the highest capabilities of use, the possibility of actual use for some consumptive purposes may be further restricted.

Discharge permits are issued assuming there will be some dilution by streamflow. The amount of flow is calculated based on the 7-day/10-year low flow, and stream depletions for existing uses are assumed to continue as part of the low flow calculation. However, there is no consideration given to the possibility that additional depletions could occur in the future, reducing the dilution factor and conceivably putting dischargers in the position of violating the terms of their discharge permits as new uses and dry periods occur.

Public Water Supply Act standards require that public supply wells be tested to demonstrate not only that the water is of adequate quality, but that it can produce a sufficient quantity of one and one-half times the desired low flow rate. Small water systems covered under the Sanitation in Subdivision Act must provide a sustained yield of at least eight gallons per minute over a two-hour period or five gallons per minute over a four-hour period. The approval or disapproval of a domestic water supply system by DHES is independent of a water right decision by DNRC.